

[54] **POCKET DATA RECEIVER WITH FULL PAGE VISUAL DISPLAY**

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[56] **References Cited**

U.S. PATENT DOCUMENTS

Re. 28,847	6/1976	Vizenor .	
Re. 32,365	3/1987	Sebestyen	340/311.1
D. 295,411	4/1988	Cho et al.	379/433
1,756,232	4/1930	Arnaud	358/208
1,766,885	6/1930	Dauvillier	358/208
1,979,296	11/1934	Sweeney	358/208
2,681,588	6/1954	Dyner .	
3,059,519	10/1962	Stanton .	
3,079,555	2/1963	Daschke .	
3,170,979	2/1965	Baldwin et al.	340/705
3,205,303	9/1965	Bradley .	
3,446,980	5/1969	Meier	250/234
3,532,408	10/1970	Dostal	350/486
3,609,485	9/1971	Dostal .	
3,671,766	6/1972	Howe .	
3,742,238	6/1973	Hoffman, II .	
3,760,181	9/1973	Daly et al.	250/332
3,781,559	12/1973	Cooper et al. .	
3,833,300	9/1974	Rymes .	
3,846,784	11/1974	Sinclair	340/814
3,923,370	12/1975	Mostrom .	
3,958,235	5/1976	Duffy .	
4,026,641	5/1977	Bosserman et al. .	
4,081,209	3/1978	Heller et al. .	
4,225,862	9/1980	Johnson	340/755
4,232,196	11/1980	Filippi .	
4,248,495	2/1981	Minoura .	
4,251,126	2/1981	Minoura et al.	350/6.6
4,268,721	5/1981	Nielson et al.	379/96 X
4,311,999	1/1982	Upton et al.	340/755

4,340,888	7/1982	Seroskie	340/755
4,364,636	12/1982	Ellis	350/174
4,415,065	11/1983	Sandstedt	340/825.44
4,439,157	3/1984	Breglia et al.	350/174 X
4,442,318	4/1984	Desrochers	379/96
4,443,075	4/1984	Crane	351/209

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

0121927	10/1984	European Pat. Off. .	
301801	2/1989	European Pat. Off.	379/53
56-30677	3/1981	Japan	340/781
57-114116	7/1982	Japan	350/6.6
8606238	10/1986	PCT Int'l Appl. .	

OTHER PUBLICATIONS

Reid, D. A. T., "Micro-Display," 6/79, IBM Technical Disclosure Bulletin, vol. 22, No. 1, p. 362.

Upton, Hubert W. and Goodman, James R., "Eyeglass Heads-Up Display," SID 81 Digest, pp. 48, 49.

(List continued on next page.)

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[57] **ABSTRACT**

A pocket-sized data receiver which is capable of displaying a full, 80 column page of data includes a virtual raster display unit, and electronic circuitry for receiving data by means of radio transmission or conventional telephone lines, processing the data into a viewable format, storing the data, displaying the data on the raster display unit, and in the case of reception of data over telephone lines, retransmitting of the data to another device over telephone lines. A keyboard connected to a processing unit enables the viewer to enter dialing information, select data for viewing, and control the selection and operation of the data receiver. The data receiver can be held and operated with one hand, and requires only one eye for viewing, thereby leaving the other eye unobstructed.

21 Claims, 5 Drawing Sheets

